

ORIGINAL RESEARCH

The effect of infrared lamp therapy on episiotomy wound restorative besides pain relief among post-partum women

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ABSTRACT

Pregnancy and labor are exceptional occasions in women's lives. Post-delivery is a very decisive period for compassionate woman who had under gone episiotomy which is a throbbing and disquiet procedure during this time. So, the aim of this study was to appraise the effect of infrared lamp therapy on episiotomy wound restorative besides pain relief among post-partum women. Post-partum women who apply infrared lamp therapy on episiotomy display faster wound restorative besides pain relief than those who do not. A non-randomized controlled clinical trial was conducted on 80 post-partum mothers having normal vaginal delivery with episiotomy who were admitted in Maternity ward at the National Medical Institute of Damanhour City. Women were randomly allocated in two groups. Where, every odd number was assigned to control group (receiving only normal routine care) and every even number was assigned to study group (applying infrared lamp therapy and normal routine care). Data were collected through a structured interview schedule, observational checklist for REEDA Scale and self-reported Numerical Pain Rating Scale. Restorative takes place within 4 days and the REEDA total Score was statistically significant. So, the study concluded that, infrared lamp therapy is an appropriate way of management episiotomy wound among women at puerperium. The study recommended that joining infrared therapy as a main part of post-partum instructions for the women for its imperative role in improving quality of life during post-partum period.

Key Words: Episiotomy, Infrared therapy, Restorative, Pain relief

1. INTRODUCTION

Although, pregnancy is a transformative event in women's lives in which they experience to a great extent pain post labour due to tender perineum. Labour is a wondrous act of nature, and distinctive to every childbearing woman. Post-partum time may turn out to be further challenging when the new mother suffers from perineal harm as a result of labour.^[1] This time is mostly an ecstatic one. Although the pain and tenderness, child labour is presumed magnificent finishing of gestation and begin of a different life time.^[2] Epi-

siotomy can be delineated as the procedure in which vaginal orifice is enlarged through an incision of the perineum. This procedure is commonly done for almost all women to help for a safe and easy labour particularly during their first delivery. This incision befalls either through the second phase of labour or rights earlier the labour. Episiotomy comprises some types such as: medio-lateral, median, lateral and J-shaped episiotomy. Of these, a medio-lateral episiotomy is the most repeated.^[3]

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The frequency of episiotomy is on the debility in developed countries however leftovers high in developing countries. World health organization has asserted on acting episiotomy merely as compulsory, and the evidence intensely exhibits that the procedures are allied with harms later in mother's lives.^[4] It is further widespread in America and Canada than in Europe. Episiotomy should be performed on choosy basis than executed as a usual practice.^[5]

The reason for this is that episiotomy inhibits more extensive childbirth injury. It is the only surgical obstetrics procedure that is carried out without the patient's contract. The perceived advantages of episiotomies include: being clean incisions adjacent to decrease in the occurrence of perineal tears particularly third grade perineal cuts. They are easy to mending and recovered well than tears. They are believed to maintain muscle relaxation of the pelvic floor and perineum result in improved sexual role and a lessened hazard of faecal and/or urinary incontinence.^[6,7] Additional less frequent problems related to episiotomy are: discomfort, edema, bleeding, hematoma, infection and mental upset. Discomfort resulting episiotomy seems to be widespread. Women experienced episiotomy usually at danger of inadequate lesion curing at the beginning of puerperium.^[8] Unfortunately, obstetricians usually carry out episiotomies habitually as it was thought to hasten the second phase of delivery and decrease the danger of impulsive perineal damaging.^[9]

Countless interventions are obtainable to support the episiotomy wound healing process during puerperium. They include: using cold compresses, topical use by dry heat (Infrared therapy), sitz bath, carrying out of kegel's exercise and perineal care.^[10] Infrared rays have therapeutic effect of aggregate the blood supply and releasing the pain. This will increase the supply of oxygen and nutrient accessible to the tissues accelerate the removal of the waste products and help to bring about the resolution of inflammation. When the heat is mild, the relief of pain is almost certainly due to the sedative effect on the superficial sensory nerve endings. It also aids to accomplish muscular relaxation and for the release of muscle spasm associated with injury or inflammation.^[11]

Infrared therapy is an appropriate substitute intervention for those with episiotomy injury and has the biological outcome on cutaneous vasodilation due to release of chemical vasodilators, histamine and parallel ingredient, along with potential direct consequence on blood vessels.^[11,12] One of the main concerns of health personnel during post-partum period should be to provide comfort to mother, help in relieving pain and to prevent infection. Accordingly, enhancing healing of episiotomy wound is one of the major concerns after a normal delivery. Nurse has a chief responsibility in

recognizing and offering essential effective-educative care to women who have experienced episiotomy. They have a main responsibility in affording care and health attentiveness to women during gestation, delivery, and post-partum phase and to advance the maternal and neonatal outcomes throughout inhibiting and/or plummeting problems during or after labor.^[13,14]

A wide variety of practices are carried out in this area. However, nurse and midwives must comprehend the relevance of their care and potential influence, both positive and negative of advocated treatment in wound healing. Thus, it becomes their responsibility to identify the ways of preventing and reducing maternal morbidity as well as to identifying the cost effective measures in relieving pain.^[13,14]

1.1 Significance of the study

This surgical procedure is largely executed globally. The international episiotomy rate was 27%, 54%, are nulliparous and 6% are multiparous women. The rate of episiotomy ranges from 50%-90% in developing countries. In quite a few countries, monotonous episiotomy has been acknowledged medical practice for many years.^[15] In developing countries over and above Egypt, routine episiotomy abetted vaginal delivery is a common practice. The predominance of routine episiotomy is due to obstetricians' belief that it may prevent pelvic floor relaxation and its squeal, such as urinary incontinence, and accelerate vaginal delivery.^[16]

1.2 Aim of study

Consequently, the present study was executed to appraise the effect of infrared lamp therapy on Episiotomy wound restorative besides pain relief among post-partum women.

1.3 Hypothesis of the study

Post-partum women who apply infrared lamp therapy on episiotomy display faster wound restorative besides pain relief than those who do not.

2. MATERIAL & METHODS

2.1 Research design

A non-randomized controlled clinical trial research study design was used to complete this study.

2.2 Setting

The study was executed at the following settings:

- (1) Maternity ward affiliated to the National Medical Institute of Damanhour City.
- (2) Women's homes.

2.3 Subjects

Post-partum mothers having normal vaginal deliveries with episiotomy were conveniently selected from Maternity ward at the National Medical Institute of Damansara City according to the following inclusion criteria:

- Post-partum mothers below 40 years of age;
- Who delivered within 2 hours;
- No instrument was used for the delivery and with no perineal tears;
- With no history of medical problems as hypertension, diabetes, anemia;
- Willing to participate in the study.

2.4 Sample size

The monthly ratio of post-partum mothers having normal vaginal delivery with episiotomy which admitted in Maternity ward was 350 women. The sample size was resolute based on preceding studies, 80 post-partum mothers were needed to appraisal effect of infrared lamp therapy on episiotomy wound healing and pain relief as assuming to be improved regarding current procedure. Using a power of 80% to detect an effect size of current procedure = 0.8, assuming prevalence of episiotomy healing = 22.8%; alpha error = 0.05 and design effect = 2.0.

2.5 Sampling technique

The study subjects were selected after identifying the list of rate per setting daily and according to the previously mentioned inclusion criteria. The samples were owed randomly and equally alienated into two study groups that is to say each odd number was belongs to control group comprised 40 women who were taught to use normal routine care and each even number was belongs to study group included 40 women who were received infrared lamp therapy on episiotomy wound beside normal routine care.

2.6 Tools of data collection

Three tools were used in order to gather the required information.

Tool (1): A structured interview schedule. It was used to collect data about the study subjects; it entailed information related to:

Part (1): Socio-demographic characteristics. It consists of 7 items: age, education, residence, occupational status, type of family, crowding index and family income. Socioeconomic level was resolute according to the total socioeconomic score settled by Fahmy and El-Sherbini (1983).^[17]

The maximum score for previous indicators was 34 points and it was classified into three levels as follows:

- High social level, $\geq 75\%$, " ≥ 25 " points.

- Middle social level, $50\% < 75\%$, " $17 < 25$ " points.
- Low social level, $< 50\%$, " < 17 " points.

Part (2): Obstetric profile. Such as: parity, no. of still birth, type of episiotomy, suture used, size of episiotomy, and time of first and second stage of labor.

Part (3): Source of mother knowledge regarding care of episiotomy.

Tool (2): Assess wound healing by using observation checklist.^[18,19] First of all Modified REEDA Scale (RS) was designed by Davidson and revised by Carey. It was applied to assess postpartum restorative of the perineum. It has five components namely: Redness, Edema, Ecchymosis, Discharge, Approximation (closeness of skin edges), with a score of 0 - 3 for each of the parameters to indicate increasing severity of wound complication. This is a healing assessment tool based on a scale of three points. Score 3 is suggestive very poor wound healing. The entire score ranged from 0 to 15 points. Higher score specifies poor wound healing while lower score specifies good wound restorative. Scores were branded like: 0 to 2-good, 3 to 5-moderate, 6 to 8-mild and 9 to 15-poor.

- Redness was assessed through four levels:

- 0 = no redness,
- 1 = < 0.25 cm (mild),
- 2 = 0.5 cm (moderate),
- 3 = > 0.5 cm (severe redness).

-Healing process was determined through four levels:

- 0 = closed (good),
- 1 = mild (skin separation) < 3 mm,
- 2 = moderate (skin or any subcutaneous fat separated)
- 3 = severe/poor healing (skin or subcutaneous fat, and facial layer separation).

Tool (3): Numerical Pain Rating Scale (self-report Pain Intensity Instruments).^[20,21]

Numeric Pain Rating Scale is the greatest common pain assessment tool used which is a verbal self-report instrument. It developed by McCaffery & Pasero (1999) and utilized to determine the intensity of pain of post-partum mothers with episiotomy. Mothers were inquired to specify the intensity of current, best, and worst levels of pain using an 10-point scale ranging from 0 (none) to 10 (severe pain imaginable). The average of the 4 ratings was used to signify the patient's level of pain. The strength of pain was scored and color discrepancy assumed for a relaxed considerate of mothers. Strength of pain scored as follows:

- 0 No Pain (Green)

- 1-3 Mild Pain (Yellow)
- 4-6 Moderate Pain (Orange)
- 7-10 Severe Pain (Red)

2.7 Methodology

1) An official letter from the Faculty of Nursing, Damanhour University was obtained and forwarded to the National Medical Institute Directorate to take his permission to conduct the study after explaining its purpose.

2) Tools were validated by submitting them to 3 experts at the same field and the modifications were incorporated in the final preparation of the tool. Inter rater method was used to determine the reliability and the 'r' value is 0.8 considered reliability of the tool.

3) Pilot study was performed in order to confirm the transparency of the tool. It was carried out on 8 post-partum mothers from Maternity ward at the National Medical Institute which were not included in the study sample.

4) The study subjects were selected according to the pre-determined inclusion criteria and those post-partum mothers having normal vaginal delivery with episiotomy within 2 hours.

5) Accordingly, 80 post-partum women were randomly allocated and divided into two matched groups (study and control).

6) Data collection methodology: Written consent was obtained from the post natal women after explaining the purpose of the study to gain their cooperation. A good relationship was established with the post-partum mothers.

Data collection was carried out through four phases:

- (1) Interviewing;
- (2) Assessment;
- (3) Implementation and
- (4) Appraising.

Interviewing phase: Initial visits, the researchers met all postpartum women at Maternity ward. Then according to the pre-determined inclusion criteria those mothers having normal vaginal delivery with episiotomy were recruited, apportioned for both groups and interviewed individually. The interview continued about 20 minutes for each mother.

Assessment phase: In this phase, postpartum women were examined firstly by the researchers to measure the episiotomy incision length and collect the baseline data related to episiotomy pain and perineal status before the intervention by using Numerical Pain Rating Scale and REEDA Scale. These assessments took about 20 minutes for each mother.

Implementation phase: Done at home during home visit to women for both two groups were performed twice a day until the fourth day morning. Study group using infrared lamp therapy and normal routine care (using 2 spoons betadine in 4 glasses of water). Once at every day morning by researcher and second time at evening by women themselves where the researcher left the infrared lamp device for them.

Control group received only normal routine care as episiotomy cleansing with their own by using 2 spoons betadine in 4 glasses of water. Both groups were followed and reported by evening mobile phone for performing cares either using infrared lamp therapy or normal routine care. Mothers were requested to specify the intensity of current, best, and worst levels of pain using an 10-point scale ranging from 0 (none) to 10 (severe pain imaginable).

Technique of procedure: The infrared the infrared lamp was used for the studied subject at study group which sited at distance of 45 cm away from the perineum and the heat emitted with 220 volts used for 10-15 minutes then level of pain was assessed directly. Because of the mixture of high degree of penetration in skin and absorbed, light is beneficial for promoting wound healing, tissue repair, and skin rejuvenation.

Appraising phase: The restorative process of the episiotomy was assessed up to 4th day morning. Then to realize the best useful technique in dealing with restorative process of the episiotomy results were compared among the two studied groups. Each interview and observation acquired 30-40 minutes. Collected data were gathered over a period of 5 months, starting from February 2017 to June 2017. The usual number of interviewee was 4-6 post-partum mothers/week for 5 months.

2.8 Statistical analysis

Data was investigated by means of PC using Excel version 2007.

The following statistical measures were used:

- Number and percentage: used for describing and summarizing qualitative data.
- Arithmetic means and Standard deviation (SD): Castoff, as measures of central tendency and dispersion respectively to condense quantitative data.
- Chi-square: used for comparison of qualitative variables between the studied groups however 't' test (paired) for quantitative variables.
- Simple (Pearson) Correlation coefficient (r) $p < .001$ was set as statistical significance level.

Graphs were done for data visualization by using Microsoft

Excel.

2.9 Ethical consideration

For each enrolled subject the following issues were considered: written consent was obtained. Privacy was maintained during process of data collection. Confidentiality and anonymity of subjects were guaranteed.

3. RESULTS

Table 1 shows that the mean age of study subjects was 24.3 ± 1.7 years and 23 ± 3.4 years for control groups respectively. Nearly the same percentages 12.5% of the study group and 15.0% of control mothers' had university education, while exactly one-quarter (25.0%) and one fifth (20.0%) of both study and control groups respectively were receiving basic

education besides. Highest percent of mother 37.5% of study and 42.5% of control group completed their secondary school education. More than one third (37.5%) of women in study group have manual work, and 45.0% of women at study group compared to 37.5% of control group were housewives. 45.0% & 32.5% and 60.0% & 67.5% of the study and control groups were from rural areas, and live in extended family respectively. It was clear that, the two studied groups were homogeneous in their characteristics.

Concerning socioeconomic level, Figure 1 reveals that 55.0% of the study group and 65% of those at control group had low socioeconomic level, while 32.5% and 27.5% of subjects of both study and control groups respectively had middle socioeconomic status.

Table 1. The study subjects' distribution along with their socio-demographic characteristics

Variables	Study group (n = 40)		Control group (n = 40)		χ ² (p value)	
	N	%	N	%		
Age group (years)	< 21	5	12.5	7	17.5	1.366 .713
	21-	28	70.0	23	57.5	
	26-	4	10.0	6	15.0	
	≥ 30-40	3	7.5	4	10.0	
	Mean & SD	24.3 ± 1.7		23 ± 3.4		
Educational level	Illiterate	3	7.5	4	10.0	0.914 .9224
	Read & write	7	17.5	5	12.5	
	Basic education	10	25.0	8	20.0	
	Secondary school	15	37.5	17	42.5	
	University	5	12.5	6	15.0	
Residence	Rural	18	45.0	13	32.5	1.31
	Urban	22	55.0	27	67.5	.251
Occupational Status	House wife	18	45.0	15	37.5	1.73
	Manual	15	37.5	13	32.5	.420
	Professional	7	17.5	12	30.0	
Type of family	Nuclear	16	40.0	13	32.5	0.486
	Extended	24	60.0	27	67.5	.48

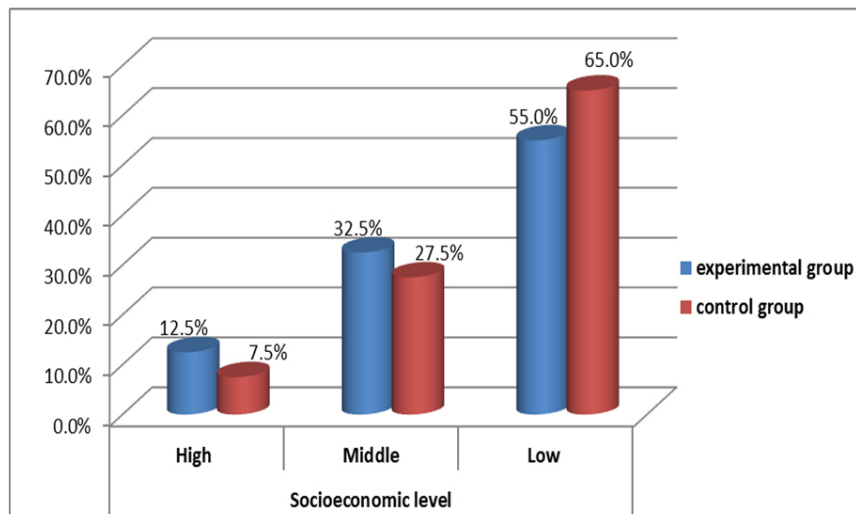


Figure 1. Socio-demographic level among the study subjects

Table 2. The study subjects' distribution along with their obstetric profile

Variables	Study group (n=40)		Control group (n = 40)		χ^2 (p value)
	N	%	N	%	
Parity					
Primipara	33	82.5	31	77.5	0.312
Multipara	7	17.5	9	22.5	.576
No of still births					
No	40	100.0	40	100.0	-
One	0	0.0	0	0.0	-
Type of episiotomy					
Right medio lateral	20	50.0	22	55.0	0.200
Left medio lateral	20	50.0	18	45.0	.654
Suture used absorbable	40	100.0	40	100.0	-
Size of episiotomy (cm)	3.78 ± 0.71		3.56 ± 0.95		1.12 .356
First stage of labor (hour)	4.3 ± 2.75		3.5 ± 1.92		1.72 .089
Second stage of labor (min)	26.1 ± 16.5		26.97 ± 15.32		0.33 .72

Table 2 illustrates obstetrics profile regarding the study subjects. The majority of mothers at study and control groups were primipara 82.5% & 77.5% respectively. No still birth was observed among them. Moreover, half of mothers in study group and 55.0% of those in control group had right medio lateral episiotomy and for all of mothers in both groups absorbable suture were used.

Figure 2 regarding sources of knowledge among study groups, the figure demonstrates that in excess of one-quarter (31.7% & 29.6%) of the study subjects in both the study and control groups, respectively, obtained their knowledge from health personal & nurses. While 51.4% & 48.6% and 54.4% & 46.6% of the study subjects at study and control groups obtained their knowledge from mass media and family members respectively.

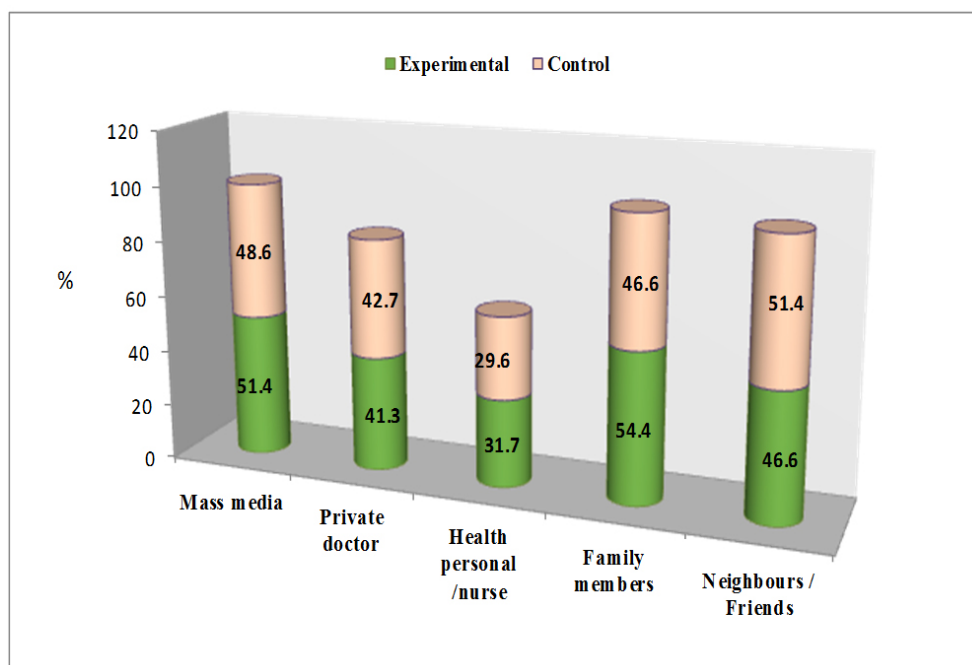


Figure 2. Source of knowledge about care of episiotomy among the study subjects

Table 3. The study subjects' distribution regarding to components of REEDA Scale at pre and post-intervention assessment

REEDA Components	Category	Pre-intervention				Post-intervention			
		Study group N = 40		Control group N = 40		Study group N = 40		Control group N = 40	
		N	%	N	%	N	%	N	%
Redness	No redness/good	0	0.0	0	0.0	37	92.5	2	5.0
	Mild	5	12.5	2	5.0	0	0.0	7	17.5
	Moderate	3	7.5	4	10.0	3	7.5	31	77.5
	Poor	32	80.0	34	85.0	0	0.0	0	0.0
<i>p</i> value	.236				.0001***				
Edema	No edema/good	0	0.0	0	0.0	36	90.0	2	5.0
	Mild	5	12.5	2	5.0	0	0.0	12	30.0
	Moderate	0	0.0	2	5.0	4	10.0	26	65.0
	Poor	35	87.5	36	90.0	0	0.0	0	0.0
<i>p</i> value	.526				.0001***				
Ecchymosis	No ecchymosis/good	0	0.0	0	0.0	37	92.5	1	2.5
	Mild	4	10.0	2	5.0	0	0.0	8	20.0
	Moderate	1	2.5	1	2.5	3	7.5	31	77.5
	Poor	35	87.5	37	92.5	0	0.0	0	0.0
<i>p</i> value	.325				.0001***				
Discharge	No discharge/good	0	0.0	0	0.0	26	65.0	2	5.0
	Mild	3	7.5	3	7.5	0	0.0	2	5.0
	Moderate	0	0.0	1	2.5	14	35.0	36	90.0
	Poor	37	92.5	36	90.0	0	0.0	0	0.0
<i>p</i> value	.258				.0001***				
Approximation	Good approximation	0	0.0	0	0.0	34	85.0	1	2.5
	Mild	5	12.5	2	5.0	3	7.5	10	25.0
	Moderate	0	0.0	0	0.0	6	15.0	29	72.5
	Poor	35	87.5	38	95.0	0	0.0	0	0.0
<i>p</i> value	.336				.0001***				
REEDA total Score									
	Good restorative (closed skin)	0	0.0	0	0.0	35	87.5	8	20.0
	Mild (skin separation)	5	12.5	2	5.0	0	0.0	10	25.0
	Moderate (skin or any subcutaneous fat separated)	5	7.5	4	10.0	5	12.5	22	55.0
	Poor (skin or any subcutaneous fat, and facial layer separation)	32	80.0	34	85.0	0	0.0	0	0.0
<i>p</i> value	.421				.001***				

****p* < .001

Applying REEDA scale reveals that none of the subjects in both groups was categorized as poor healing at post-intervention (see Table 3). However, there was noticeably high percentage of mothers in the study group was categorized as good post-intervention as compared to control group. Good score was obtained for the majority of women in the study group related to Redness, Edema, Ecchymosis, Discharge and Approximation (92.5%, 90.0%, 92.5%, 65.0% and 85.0%) respectively.

There was a statistically significant difference was observed related to all REEDA Components. Wherever, those women applied the infra-red lamp attained good restorative in advance than those of the control group, statistically significant difference were found related to Redness, Edema, Ecchymosis, Discharge and Approximation, where *p* were .0001, .0001, .0001, .0001 & .0001 respectively.

According to REEDA scale total score, in pre-intervention, the majority of subjects of both control as well as study

group were arranging in poor category and no one was in the good category. However, post intervention made known a significant high proportion of post natal mothers (87.5%) showed good signs of wound restorative compared to one

fifth for control group. A significant difference was observed between the study and control groups for good healing of REEDA signs and symptoms, where p value was .001.

Table 4. Comparison of the Mean score of the intensity of pain among the study subjects before and after intervention

Episiotomy Pain	Study Group	Control Group	t test	p value
Day 1(base line) Observation I	2.9 ± 1.44	4.9 ± 0.81	5.24	.001***
Day 2 Observation I	1.38 ± 0.92	3.6 ± 0.82	4.02	.006
Day 3 Observation I	1.39 ± 0.87	2.4 ± 0.98	3.69	.003
Day 4 Observation I	0.2 ± 0.09	1.6 ± 0.62	1.05	.001***

*** $p < .001$

The intensity of pain's means score among the study subjects was significantly decreased from 2.9 ± 1.44 at the first time at the base line assessment to 0.2 ± 0.09 the last time of assessment at the fourth day post-intervention. The difference was statistically significant (t test = 5.24 and 1.05 respectively) as exhibited in Table 4.

Table 5. Correlation between the wound restorative & pain level scores of mothers at the study group

Variable	Study group		r value
	Mean	SD	p -value
Pain level	1.92	0.432	-0.412
Wound healing	1.28	0.817	.00001***

*** $p < .001$

There is a negative correlation between the pain level score and wound healing score ($r = -0.412$) as shown in Table 5, which designates that there is a decline of pain as wound restorative take place & vice versa. There is statistical significant difference ($p = .00001$).

4. DISCUSSION

In obstetrics, episiotomy is one of the supreme common procedures, which executes during the last part of the second phase of delivery.^[22] The mother undergoing this procedure is categorized by greater blood loss in combining with labour, and there is a risk of improper wound restorative and increased pain during early postpartum. The delivery of plentiful care measures is projected to assist perineal healing.^[23,24] So the aim of this study was to appraise the effect of infrared lamp therapy on episiotomy wound restorative besides pain relief among post-partum women.

The study groups of women in the present study were similar

of their characteristics and the majority of them were primiparous. As education is likely to enrich women autonomy and improve greater self-reliance and competences to make decisions regarding their health. It is likely to say that more educated women seek better health care. Slightly more than one third of mothers in both groups at the present study had secondary educational level and living in rural areas. This is revealed in the study group through women cooperation, accepting and practicing infra-red procedure and with reference to their occupation, it also found that highest percent of the women in both groups were house wives.

Currently, to inhibit intracranial hemorrhage and other complications during deliveries there is no scientific evidence is obtainable to support the use of routine episiotomy care. With this in mind, the impact of poverty on availability of certain resources to care of episiotomy needs to be placed into consideration.^[25] In this study less than half of women in rural and more than half in urban had low socio economic level. This result is congruent with study conducted by Ahmed H.M. in Iraq (2015),^[26] which stated that, almost 62.4% of the study population belonged to lower socioeconomic state which was extremely poor. This may be due to that both countries had low income per capita.

Regarding sources of knowledge among studied groups of women, the present study revealed that, about half of women obtained their knowledge about care of episiotomy from family members, followed by neighbors or friend then media and lastly private doctors. It may be attributed to; about two thirds of study subjects were living as a part of an extended family. An extended family is two or more women adults from different generations of a family, who share their past experiences including antenatal and post natal care. But these

results converse with Oluwasola T (2017)^[27] who stated that 65.5% of respondents had constantly perceived about episiotomy and the major source of information was the health workers. The incongruity of the results may be attributed to the culture differences and influential role of family in Arab countries on women health and on transforming knowledge and sharing their experience.

Mothers prerequisite episiotomy care related instructions in order to recover completely from this small surgery. Where, most of them usually do not forestall the pulling pain from perineal stitches in the postpartum period, discomfort that inhibits with their rest and sleep, with eating, and with being able to sit and hold their baby comfortably.^[28]

The current study illustrated that restorative took place within 4 days and they achieved good healing earlier and faster than control group who use the routine care of episiotomy. Thus, the infra-red lamp is a better management for episiotomy wound restorative than the other measure. This result is analogous with study done in India by Nethravathi et al. (2015)^[29] and stated that after intervention revealed a significant great percentage of mothers at puerperium (92.64%) had healthier wound restorative within four days compared to none of the control group. However, these contradicts with earlier Egyptian study done at (2012)^[30] which reported that, the widely held of episiotomy restorative takes place within the initially 2 weeks, but it may proceeds 4 to 6 months to restore entirely.

After labor episiotomy care would begin as soon as possible and should include a combination of tropical wound care and pain relief. Many interventions are in practice to relieve pain and thus enhance the healing of episiotomy wound, which include warm soaks, warm sitz bath, infrared radiation, cooling pads and application of antiseptic solutions.^[31]

Perineal soreness or pain is a common occurrence and is frequently reported following episiotomy. Those women who deliver vaginally suffer to some extent from pain following delivery which usually related to the type and size of the trauma. Pain causes stress and hampers the women's ability to give care for their newborn.^[32] The area of the episiotomy may be uncomfortable or even painful for quite a lot of days. Several practices can release some of the pain. The dry heat application is more effective than moist heat application and the effect of dry heat continues for a longer time, keeps the wound dry and improves healing. Infrared light can be gotten from thermal radiation. Any kind of radiation that perceiving as heat; be it from the sun, fire or a light bulb, are actually transmitted by infra-red rays. Infrared light can infiltrate 2-3 centimetres profound into our body.^[29] Infra-red lamp not only permits fast wound healing, but also helps in absorp-

tion of moist, prevents growth of microorganisms, loosening tight muscles, aids in healing damaged tissue, and pain relief providing comfort plummeting edema.^[29]

In the present study all at pre-intervention phase of REEDA score of the studied subjects were similar. Post-intervention comparison revealed significantly good wound restorative in study group as compared to control group. However, there was markedly high percentage of mothers at post-intervention phase with 'Good' category in study group as compared to control group. This indicates that the improvement in wound restorative in study group due to intervention done to them.

With similarity of the current study, an intervention study was conducted by Kaur (2013)^[12] to compare the effect of dry heat (Hair Drier) versus moist heat (Sitz Bath) on pain and wound restorative at episiotomy location among postnatal mothers admitted in Nehru Hospital, Chandigarh. Where, the subjects in group one (dry heat) had lesser pain intensity than those in group two (sitz bath) after the intervention. While results of the present study revealed that, the mean and standard deviation of episiotomy pain score of control group participants were high in both observation I and II on all three days in comparison with the study group, with statistical significant difference.

Likewise, a quasi-experimental study done in Rural Hospital in India also (2010)^[33] on postnatal mothers. The study results made known that the felt pain of postnatal mothers due to episiotomy wound is designated by the application of dry heat.

There is a negative correlation between the pain level score and wound restorative score for the study group, which indicates a reduction of pain as the wound healing occurs. This may be due to the effect of infra-red lamp in increasing the circulation in this area. Hence when heat is applied on episiotomy wound vasodilatation occurs and the blood circulation to the area increases, blood contents oxygen nutrients.^[34,35] However, a positive correlation between wound restorative and pain level was reported by Dash M. (2013).^[36]

As a final point, with technological developments ever increasing challenges of health care means and emerging health care trends, the future of nursing should asserts that nursing has a dangerous involvement in healthcare reform and the burdens for a safe, quality, patient-centered, reachable, and affordable healthcare. Furthermore, nursing need to emphasis on modernisms to improve the nursing care practices. Currently, it's thrilling time to be a part of the healthcare innovations. With changes in care delivery, technological advances and increased patient expectations, the role of nurses

as healthcare professionals is mounting and sprouting. This trend entails nurses to have the latest information at their disposal so they can efficiently assess and care their patients.^[37]

5. CONCLUSION & RECOMMENDATIONS

It was obvious from the findings that the study hypothesis was accepted and supported, where the post-partum women who applied infrared lamp therapy on episiotomy display faster wound healing than those who applied normal routine care. So, infrared therapy can be applied as effective way of management by health personnel in their daily caring the post-partum mothers. Therefore the study recommended that:

- (1) Joining the infrared therapy as a main part of postpartum instructions for the women for its imperative role in improving quality of life during post natal period.

- (2) Future research can be replicated in different settings with similar intervention technique or with a larger sample.
- (3) Developing and adopting appropriate cost effectiveness, easy to use method for relieving pain, enhancing wound healing and eliminate women suffering as well as decrease spread of infection at this critical period.

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CONFLICTS OF INTEREST DISCLOSURE

There is no conflict of interest to disclose.

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